

Amendment to the Drawings

One sheet of replacement drawings is attached hereto as Exhibit A including an amended Fig. 6.



REMARKS/ARGUMENTS

The Office Action dated September 20, 2005 has been carefully considered. Claims 1-22 were pending in the present application with claims 1 and 2 in independent form. Claims 1, 2, 4 and 19 have been amended herein in order to further clarify the features of the present application and new claim 23 has been added. Claims 14-15 have been canceled without prejudice or disclaimer.

The Examiner has objected to the drawings under 37 C.F.R. §1.83(a) because the drawings allegedly do not show the claimed “pin shaped elements” recited in claim 6.

The Examiner further objected to the drawings under 37 C.F.R. §1.84(p)(4) because reference character “51” has been used to designate both “first flank region” and “second flank region” shown in FIG. 6.

In amended FIG. 6, the reference numeral “51” on the right side of the figure has been changed to --53-- to refer to the second flank region. Support for this change can be found at least at page 7, line 22 to page 8, line 3.

In addition, reference number “62” has been added to FIG. 6 to indicate the pin shaped element. Support for this change can be found at least in the original claim 6 and at page 8, line 18 to page 9, line 3 of the present application. In addition, the paragraph beginning at page 8, line 18 of the specification has been amended to include reference number 62.

It is believed that the changes made to FIG. 6 overcome the objections to the drawings. Accordingly, it is respectfully requested that the objection to the drawings be reconsidered and withdrawn.

The specification has been objected to based on informalities. More specifically, the Examiner contends that on page 7, line 22 the phrases “cutter 9” and “cutter 9” should read -- cutting edge 9-- and --cutting edge 9'--, respectively. Applicants have amended the paragraph beginning at page 7, line 22 to correct this error.

Accordingly, it is respectfully requested that the objection to the specification be reconsidered and withdrawn.

The Examiner has rejected claims 4-8 and 19-22 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 4, the Examiner contends that the phrase “respective inserts” has insufficient antecedent basis. While Applicants do not necessarily agree that the term “respective inserts” is used without proper antecedent basis, in order to further prosecution of the present application, Applicants have amended claim 4 to further clarify the features of the present application. It is believed that amended claim 4 particularly points out and distinctly claims the subject matter which Applicants regard as the invention.

With regard to claim 19, the Examiner contends that it has been held that an element “adapted for” performing a function is not a positive limitation but only requires the ability to so perform and that it does not constitute a limitation in any patentable sense. Applicants respectfully disagree.

As stated in M.P.E.P §2173.05(g) “[T]here is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper.” More specifically, as is further stated in M.P.E.P §2173.05(g) “In a claim that was directed to a kit of component parts capable of being assembled, the Court held that limitations such as ‘members adapted to be positioned’... serve to precisely define present structural attributes of interrelated component parts of the claimed assembly.” However, in an effort to further prosecution of the present application, Applicants have hereby amended claim 19 in order to further clarify the features of the present application. It is believed that amended claim 19 particularly points out and distinctly claims the subject matter which Applicants regard as the invention.

With regard to claim 20 the Examiner contends that the claimed limitation is unclear since any cutting tip having 2 or more cutting edges is not required to be reset or adjusted when a respective active cutting edge thereof becomes worn.

Claim 20 relates to a method for metal cutting machining of a surface in an opening including operating a tool according to claim 1 at the surface in the opening to metal cut machine

the surface, wherein the cutter tip is not required to be reset or adjusted when a respective active cutting edge thereof becomes worn.

As is noted in the specification, "because the cutter tip 7 is designed as an indexable tip and because of the exact positioning of the cutter tip 7 by the supporting surfaces 27 and 29, resetting or adjusting devices, which might weaken the tool 1, are not required." The specification also notes "[S]ince the cutter tip 7 need merely be rotated if the active cutter 9 becomes worn, it is not disadvantageous for the tool 1 to omit an adjusting device for resetting the cutter tip 7 if it becomes worn." See Specification, page 14, lines 1-10.

Thus, it is believed that claim 20, when properly read in light of the specification, particularly points out and distinctly claims the subject matter which Applicants regard as the invention.

Accordingly, it is respectfully submitted that the rejection of claims 4-8 and 19-22 under 35 U.S.C. § 112, second paragraph be reconsidered and withdrawn.

Claims 1-5, 7, 9 14 and 15 have been rejected as allegedly anticipated by Breuning (U.S. Pat. No. 3,271,842). Reconsideration of the rejection of these claims is respectfully requested.

The Examiner contends that Breuning discloses all of the elements of claims 1 and 2. Applicants respectfully disagree.

Claim 1, as amended herein, relates to a tool for metal cutting machining a surface in an opening including a cutter tip having at least one geometrically defined cutting edge, wherein the cutter tip is a hexagonally shaped indexable tip and wherein an angle between each side of the cutter tip and an adjacent side is substantially the same for each side of the cutter tip; two supporting regions in the tool for supporting the cutter tip, against which the cutter tip rests, and the supporting regions are oriented with respect to each other at an angle, the supporting regions also being so oriented that a line bisecting the angle between the supporting regions runs essentially perpendicular to an active one of the cutting edges, which is the edge that removes metal chips from the surface in the opening, wherein the cutter tip is turnable six times to make six cutting edges available for machining. Support for the amendment of claim 1 can be found at least in Figs. 2-3, original claims 14 and 15 and page 5, line 16 to page 6, line 15 of the present application.

Claim 2, as amended herein, relates to a tool for metal cutting machining a surface in an opening including a cutter tip having at least one geometrically defined cutting edge, wherein the cutter tip is a hexagonally shaped indexable tip and wherein an angle between each side of the cutter tip and an adjacent side is substantially the same for each side of the cutter tip; two supporting regions in the tool for supporting the cutter tip, the supporting regions having support surfaces against which the cutter tip rests, and the support surfaces of the supporting region are oriented with respect to each other at an angle, the supporting regions also being so oriented that a line bisecting the angle between the support surfaces runs essentially perpendicular to an active one of the cutting edges, which is the edge that removes metal chips from the surface in the opening, wherein the cutter tip is turnable six times to make six cutting edges available for machining. Support for the amendment of claim 1 can be found at least in Figs. 2-3, original claims 14 and 15 and page 5, line 16 to page 6, line 15 of the present application.

Breuning relates to an interchangeable flat polygonal bits fixed in a lathe tool holder by means of a screw. Breuning discloses a flat hexagonal bit 28 in a tool holder with a recess with seating surface 40 and two lateral supporting surfaces 41 and 43 which are at right angles to the seating surface.

Breuning, however, does not disclose a tool for metal cutting machining including a cutter tip "wherein the cutter tip is a hexagonally shaped indexable tip, and wherein an angle between each side of the cutter tip and an adjacent side is substantially the same for each side of the cutter tip" as recited in claim 1 of the present application, for example. While Breuning may disclose a hexagonal bit 28, Breuning does not disclose that an angle between a side of the bit and the adjacent side thereto is substantially the same for each of the sides of the cutter. In fact, Breuning discloses that the bit has angles in the cutting corners of approximately 85° and that the remaining corner angles are approximately 155° . In addition, Breuning does not disclose a tool for metal cutting machining "wherein the cutter tip is turnable six times to make six cutting edges available for machining."

Accordingly, it is respectfully submitted that claim 1, and the claims depending therefrom are patentable over the cited art for at least the reasons discussed above.

Similarly, it is respectfully submitted that claim 2, and the claims depending therefrom are patentable over the cited art for at least reasons similar to those described above with regard to claim 1.

Further, it is respectfully submitted that Breuning fails to disclose a tool for metal cutting machining a surface in an opening including a cutter tip having at least one geometrically defined cutting edge, wherein the cutter tip is a polygon shaped indexable tip and wherein an angle between each side of the cutter tip and an adjacent side is substantially the same for each side of the cutter tip; two supporting regions in the tool for supporting the cutter tip, against which the cutter tip rests, and the supporting regions are oriented with respect to each other at an angle, the supporting regions also being so oriented that a line bisecting the angle between the supporting regions runs essentially perpendicular to an active one of the cutting edges, which is the edge that removes metal chips from the surface in the opening, wherein the cutter tip is turnable to make multiple cutting edges available for machining as substantially recited in new claim 23, for example.

Accordingly, it is respectfully submitted that new claim 23 is patentable over the cited art for reasons at least similar to those described above.

Claims 20-22 have been rejected under 35 U.S.C. 102(b) as allegedly anticipated by Link et al. (U.S. Pat. No. 5,876,155). Reconsideration of the rejection of these claims is respectfully requested.

The Examiner contends that Link et al. discloses all of the elements of claim 20. Applicants respectfully disagree.

Claim 20 relates to a method for metal cutting machining of a surface in an opening including operating a tool according to claim 1 at the surface in the opening to metal cut machine the surface, wherein the cutter tip is not required to be reset or adjusted when a respective active cutting edge thereof becomes worn.

Link et al. relates to a method that eliminates or reduces chatter when plunge cutting with boring cutters at different diameters, different tool geometries different chip loads and different cutting depths by computing optimal cutting locations with different phase angles therebetween to minimize the resultant radial force of the combined cutters. More specifically, Link et al.

discloses a plunge cutting tool 10 to create three different adjacent surfaces for a valve seat on an automotive engine cylinder head in one thrust of a rotary tool by use of cutters 15, 16, 17 and 19 carried at slightly different diameters and different depths.

Link et al. however, fails to show or suggest a method for metal cutting machining of a surface in an opening including "operating a tool according to claim 1." In addition, Link et al. does not disclose a method for metal cutting machining "wherein the cutter tip is not required to be reset or adjusted when a respective active cutting edge thereof becomes worn" as recited in claim 20 of the present application.

Accordingly, it is respectfully submitted that claim 20, and the claims depending therefrom are patentable over the cited art for at least the reasons mentioned above.

Claim 6 has been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Erickson (U.S. Pat. No. 4,202,650). Reconsideration of the rejection of these claims is respectfully requested.

Claim 6 depends from claim 2, indirectly. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 2 is patentable over Breuning in view of Erickson, at least because Breuning and Erickson, either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claim 6, are patentable over the cited art for at least the reasons mentioned above.

Claim 8 has been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Satran et al. (U.S. Pat. No. 5,836,724). Reconsideration of the rejection of these claims is respectfully requested.

Claim 8 depends from claim 2, indirectly. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 2 is patentable over Breuning in view of Satran et al., at least because Breuning and Satran et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claim 8, are patentable over the cited art for at least the reasons mentioned above.

Claims 10-13 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Royal et al. (U.S. Pat. No. 4,848,198). Reconsideration of the rejection of these claims is respectfully requested.

Claims 10-12 depend from claim 1, either directly or indirectly. As noted above, it is believed that claim 1 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 1 is patentable over Breuning in view of Royal et al., at least because Breuning and Royal et al., either alone or in combination, fail to show or suggest the patentable features of claim 1 described above.

Accordingly, it is respectfully submitted that claim 1, and the claims depending therefrom, including claims 10-12, are patentable over the cited art for at least the reasons mentioned above.

Claim 13, depends from claim 2. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 2 is patentable over Breuning in view of Royal et al., at least because Breuning and Royal et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claim 13, are patentable over the cited art for at least the reasons mentioned above.

Claims 16-17 and 19 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Link et al. Reconsideration of the rejection of these claims is respectfully requested.

Claims 16-17 depend from claim 2. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 1 is patentable over Breuning in view of Link et al., at least because

Breuning and Link et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claims 16-17, are patentable over the cited art for at least the reasons mentioned above.

Claim 19 depends from claim 1. As noted above, it is believed that claim 1 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 1 is patentable over Breuning in view of Link et al., at least because Breuning and Link et al., either alone or in combination, fail to show or suggest the patentable features of claim 1 described above.

Accordingly, it is respectfully submitted that claim 1, and the claims depending therefrom, including claim 19, are patentable over the cited art for at least the reasons mentioned above.

Claim 18 has been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Hellstrom et al. Reconsideration of the rejection of these claims is respectfully requested.

Claim 18 depends from claim 2. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 1 is patentable over Breuning in view of Hellstrom et al., at least because Breuning and Hellstrom et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claim 18, are patentable over the cited art for at least the reasons mentioned above.

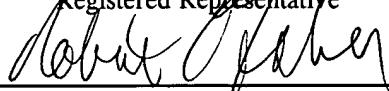
In light of the remarks and amendments made herein, it is respectfully submitted that the claims of the present application are patentable over the cited art and are in condition for allowance.

Reconsideration of the present application is respectfully requested.

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Signature

December 20, 2005

Date of Signature

Respectfully submitted,



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